



PREVENTION OPPORTUNITIES UNDER THE BIG SKY

ANIMAL BITES AND THE RISK OF RABIES – A PUBLIC HEALTH PERSPECTIVE

Animal bites tend to occur with a higher frequency during summer. These bites require clinicians and public health officials to assess the risk of rabies exposure for the bite victim. This issue of *Montana Public Health* will review rabies disease, highlight the epidemiology of human and animal rabies, and provide tools and guidelines for wound management, assessing risk and making recommendations for rabies prophylaxis following animal bites in Montana.

Disease overview

Rabies is a viral disease that affects all warm-blooded animals. Rabies is usually transmitted through a bite from an infected animal. The rabies virus moves along peripheral nerves to infect the central nervous system, causing encephalopathy and ultimately death. Early symptoms of rabies in humans are nonspecific, consisting of fever, headache, and general malaise. As the disease progresses, neurological symptoms appear and may include insomnia, anxiety, paralysis, and hydrophobia (fear of water). Death usually occurs within days of the onset of symptoms. Symptoms of rabies in humans occur an average of 30 to 50 days after exposure to a rabid animal; however, symptoms can occur as early as 14 days or as late as a year after exposure.

Animals affected by rabies show changes in personality and behavior. Domestic animals may become aggressive, belligerent, unable to eat and drink, or have an unsteady gait or paralysis of the rear limbs. Wild animals often become aggressive, lose their fear of people and other animals, or become active during unusual times of the day (e.g., bats active during the daytime).

Epidemiology

Rabies in humans is extremely uncommon; only one or two cases have been reported annually in the U.S. in recent years. The last cases in Montana were deaths in 1996 and 1997. Both cases were associated with unrecognized and unreported exposures to bats. However, human fatalities in 2007 in Alberta and Minnesota associated with exposures to bats serve as a grim reminder about the public health significance of unrecognized exposures to potentially rabid animals.

Animals serve as the primary reservoir for rabies; different variants of the virus are geographically distinct.¹ During 2006, wild animals accounted for 92% and domestic animals for 8% of reported cases of rabies in the U.S. Raccoons, bats, skunks and foxes were the

most frequently reported rabid wildlife species. Cats and dogs continue to be the most commonly reported rabid domestic animals.

During 2007, 544 animals were tested for rabies in Montana; 22 (4%) were rabid. Rabid animals were identified in 13 counties. While most rabid animals were wildlife, domestic pets and livestock were also affected (Table 1). Nearly two-thirds of these rabid animals exposed humans to rabies.

Table 1. Rabid animals and associated human exposures, Montana, 2007.

Animal type	Number of animals	Number (%) with human exposure
Bat	13	9 (69)
Skunk	6	2 (33)
Dog	2	2 (100)
Lamb	1	1 (100)
Total	22	14 (64)

Assessing exposure risk and need for prophylaxis

Rabies is preventable when timely, appropriate care is provided. Health care providers should advise persons who have been bitten by an animal or handled a suspect rabid animal to wash wounds with soap and water or provide that wound care to the person bitten. Health care providers and bite victims should then consult with local public health authorities to 1) report a potential rabies exposure, 2) obtain assistance with decisions on how to manage the animal and 3) assess the need for rabies post-exposure prophylaxis (PEP). A rabies consultation and risk assessment with public health authorities should take place *prior* to administration of PEP. Because of the prolonged latency period for rabies, PEP administration, while urgent, is not a medical emergency.

Tools are available for assistance in determining the need for PEP, as well as the management of biting and potentially rabid animals. To help determine the need for PEP, DPHHS has developed the "Rabies Exposure Assessment Tree".² Complete guidance on rabies risk

assessment and PEP administration was recently updated and published by CDC.³ Guidance is available from the National Association of State Public Health Veterinarians to assist with the management of biting and potentially rabid animals.⁴ The Montana Department of Livestock provides consultation on the control of rabies in domestic livestock and other animals. If necessary, laboratory testing of animals for rabies is available at the Montana Veterinary Diagnostic Laboratory (<http://www.mt.gov/liv/lab/index.asp>).

Rabies Prevention

Many animal bites and potential rabies exposures can be avoided. One of the primary ways to prevent rabies is to avoid contact with wild animals, particularly those showing odd or aggressive behavior. Exclusion of wild animals, particularly bats, from homes or occupied spaces will minimize human contact with key wildlife rabies reservoirs. Keeping rabies vaccination up-to-date for pets provides protection for the animal and a buffer between rabies in wildlife and in humans. Avoiding animal bites is also key to prevention. Community approaches have been successfully implemented to reduce the number of dog bites.⁵

Recommendations for health care providers caring for persons bitten by animals

- Report all potential rabies exposure to local public health officials.
http://www.dphhs.mt.gov/PHSD/epidemiology/documents/county_contacts.pdf
- Consult with local public health professionals to assess if rabies post-exposure prophylaxis (PEP) is indicated.
- Irrigate and cleanse wound; provide wound care to prevent infection. Assess need for tetanus prophylaxis.
- When indicated, ensure PEP is administered properly. Administration of rabies PEP is urgent but not a medical emergency.

Recommendations for public health care professionals responding to persons bitten by animals

- Ensure adequate wound care for bite victim.
- Investigate animal bite or potential exposure incident.
- Assess risk of rabies exposure and need for PEP using incident information.
- Provide for management of biting animal, including rabies testing, if necessary.

For more information or 24/7 consultation, contact the Communicable Disease Epidemiology Section at 406-444-0273. References:

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4. Centers for Disease Control and Prevention. Compendium of animal Rabies prevention and control, 2007. MMWR. 2007;56(No. RR-3):1-8.
5. Task Force on Canine Aggression and Human-Canine Interactions. A community approach to dog bite prevention. JAVMA. 2001;218:1732-1749. http://www.avma.org/public_health/#dogbite

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